Industrial Cellular Routers & Gateways

ICR-4434

High-Speed 4G Router & Powerful Edge Computing Gateway

Features

- LTE Advanced Cat.12 Global Cellular Connectivity
- Download Speed Up to 600 Mbps
- Quad-core CPU with 1 GB RAM
- 2× SIM, eSIM Ready, TPM 2.0
- 5× Gigabit Ethernet (Optional 4× PoE+ PSE)
- SFP Connector for SFP modules up to 10 Gbps
- GNSS Receiver, Micro SD Card
- RS232, RS485, CAN BUS, 2× DI, 2× DO, USB Host
- Robust metal cover with wall and DIN mount options
- Wide operational temperature range
- Optional Dual-Band WiFi

Project based customization: SSD disc, Dual Concurrent WiFi AP, Bluetooth

Vertrieb durch AMC
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Introduction

The ICR-4434 is a High-Speed 4G Router & Powerful Edge Computing Gateway focused on the global market. The LTE-A Cat.12 worldwide connectivity with 3G fallback is an ideal choice for high demand data transfer in IoT/M2M applications. Due to the high-speed data transfer of up to 600 Mbps (download) and up to 150 Mbps (upload) this router is an ideal solution for specialized M2M devices and IIoT. It serves well also for the wireless connection of traffic and security camera systems, individual computers, LAN networks, Industrial systems, and various self-service terminals.

The new router platform "v4" provides intelligence at the network edge with an extremely powerful Cortex A72 CPU at 1200 MHz, 4 GB eMMC memory, 4 MB flash memory, and 1024 MB RAM. The focus on high security underlines using TPM 2.0, and Tamper Button that ensure safe use in critical infrastructure systems.

The ICR-4434 is powered by the ICR-OS Linux operating system that provides a wide range of enhanced networking features. A secure Web interface allows users to configure and manage routers from remote locations. The router supports multiple configuration profiles, automatic firmware updates, etc. The router can be used as a powerful edge computing gateway because of the support of many ways of software customization. Users may insert Linux scripts and add new features by additional applications called Router Apps (User Modules).

There is an existing free library of Router Apps or the user may create own app using Advantech SDK. The gateway can easily run applications like Node-RED or Docker that open the way to a multi-container world.

The ICR-4434 is designed and manufactured for use in tough environmental conditions. Specifications include a wide operating temperature ranges from -40 to +75 °C. It accepts input voltage range from 9 V DC to 48 V DC and is equipped with sleep mode for reducing electrical consumption.

As a standard, ICR-4434 is equipped with five Ethernet 10/100/1000 Mbps (1× independent and 4× switch), SFP cage (independent port), one USB host 2.0, microSD reader, serial lines RS232 and RS485, CAN Bus, two binary inputs, and two binary outputs. This router contains two SIMs readers, which are placed on the rear side of the device. There is also the possibility to use one eSIM. ICR-4400 has two mPCIe connectors that can be used for two WiFi modules. The router is supplied in a robust metal casing for a wall mount (DIN mount is optional).

ICR-4434 is easy to manage using WebAccess/DMP, full-featured cloud-based management, provisioning, and monitoring tool for mass deployment. The WebAccess/VPN is a perfect way how to create secure virtual private networks on the Internet.

ICR-OS RouterApp python Node-RED docker

WebAccess/DMP WebAccess/VPN

Model no. - Order Codes		REGION	5× Gigabit Ethernet	4× PoE PSE+	SFP cage (up to 10 Gbps)	RS232 RS485 CAN BUS I/O	GNSS	1× ANT 1× DIV	2× SIM	WiFi 802ac	Operating Temperature
	ICR-4434	GLOBAL*	✓		✓	✓	✓	✓	✓	NONE	-40 to +75 °C
	ICR-4434S	GLOBAL*	✓	✓	✓	✓	✓	✓	✓	NONE	-40 to +75 °C
	ICR-4434W	GLOBAL*	✓		✓	✓	✓	✓	✓	3×3 MIMO	-40 to +75 °C
	ICR-4434WS	GLOBAL*	✓	✓	✓	✓	✓	✓	✓	3×3 MIMO	-40 to +75 °C
	ICR-4434W1	GLOBAL*	✓		✓	✓	✓	✓	✓	3×3 MIMO	-40 to +60 °C
	ICR-4434W1S	GLOBAL*	✓	✓	✓	✓	✓	✓	✓	3×3 MIMO	-40 to +60 °C
PLANNED	ICR-4434W3	GLOBAL*	✓		✓	✓	✓	✓	✓	2×2 MIMO	-40 to +75 °C
PLANNED	ICR-4434W3S	GLOBAL*	✓	✓	✓	✓	✓	✓	✓	2×2 MIMO	-40 to +75 °C

* - Router is compatible with cellular networks in the indicated region. Importer/operator needs to check locale legislation (standards, national Telecom approvals etc.) and compare with standards available for product if possible to operate the router in target region legally.

All product specifications are subject to change without notice.

ADVANTECH iAutomation Premier Partner

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Specifications

System	
CPU	Quad-Core ARM Cortex-A72, 1200 MHz
Memory	RAM - 1024 MB eMMC - 4096 MB (838 MB for Router Apps, 512 MB for customer data)
Watchdog	HW Watchdog
RTC	Battery backup RTC
TPM	Trusted Platform Module (TPM) 2.0
Interfaces	
Ethernet	5× Ethernet (4+1), RJ45, 10/100/1000 Mbps *Optional 4× PoE PSE, IEEE 802.3at-2009 (PoE+) and IEEE 802.3af-2003 (PoE) (PoE use is limited – see the ICR-4461 user manual)
SFP Cage	1× SFP cage (up to 10 Gbps)
Serial Lines	1× RS232 (Tx, Rx, GND, RTS, CTS) 1× RS485 (A(-), B(+), GND) 1× CAN (CAN_H, CAN_L) (14-pin terminal block)
I / O	2× Digital Input (3 mA consumption) 2× Digital Output (Open Drain, 48 V / 500 mA) (14-pin terminal block)
USB	1× USB 2.0 Host Connector
MicroSD Card	1× Micro SD Card Slot
Reset Button	Reboot / Factory reset
LED Indicators	System, 3-level signal strength, Data activity, SIM1/SIM2 status, 3G/4G technology, 2× Input, 2× Output, User, ETH

GNSS	
Antenna	1× SMA connector, active (50 mA), passive
Systems	GPS, GLONASS, BeiDou, Galileo, QZSS, SBAS
Protocol	NMEA
Ac Time-to-First-Fix	Cold 25 s, Warm 10 s

Environmental	
Power Supply	9 – 48 V DC (2-pin terminal block)
Consumption	**Without WiFi** Idle 4.6 W / Average 5.7 W / Peak 13 W **With WiFi** Idle 5.8 W / Average 7.2 W / Peak 15 W **PoE PSE without WiFi** Idle 4.8 W / Average 5.7 W / Peak 128 W **PoE PSE with WiFi** Idle 6.3 W / Average 7.2 W / Peak 130 W
Sleep Mode	Yes, 24 mW, 310 mW for PoE PSE
Operating Temperature	-40 to +75 °C -40 to +60 °C - **ICR-4434W1, ICR-4434W1S**
Storage Temperature	-40 to +85 °C
Humidity	0 to 95 %
IP Cover	IP30
Physical Characteristics	
Dimensions	47 × 109 × 195 mm
Enclosure	Robust Metal Case, Grounding Screw
Mounting	Wall Mounting, DIN Rail (o ptional)
Weight	1275 g

WiFi - optional (**ICR-4434W, ICR-4434WS, ICR-4434W1, ICR-4434W1S**)	
Antenna	3× R-SMA connectors, 3×3 MIMO
Standards	IEEE802.11 ac/a/b/g/n 2.4 GHz / 5 GHz
Data Rate	Up to 600 Mbps @ 2.4 GHz Up to 1300 Mbps @ 5 GHz
Security	WEP, WPA, WPA2, WPA3, 802.1X
Modes	Access Point (unlimited clients), Station, Multirole STA & AP

WiFi - optional (**ICR-4434W3, ICR-4434W3S**) PLANNED	
Antenna	2× R-SMA connectors, 2×2 MIMO
Standards	IEEE802.11 ac/a/b/g/n 2.4 GHz / 5 GHz
Data Rate	Up to 300 Mbps @ 2.4 GHz Up to 867 Mbps @ 5 GHz
Security	WEP, WPA, WPA2, WPA3, 802.1X
Modes	Access Point (unlimited clients), Station, Multirole STA & AP

Cellular Interface	
SIM Slots	2× SIM (Mini SIMs – 2FF) 1× eSIM Ready
Antennas	2× SMA connector (1× Main, 1× Diversity)
LTE Parameters	Supported LTE-FDD frequency bands: B1/B2/B3/B4/B5/B7/B8/B9/B12/B13/B14/B17/B18/B19/B20/B21/B25/B26/B28/B29/B30/B32/B66 Supported LTE-TDD frequency bands: B38/39/B40/B41 Transfer rate: 600 Mbps (DL), 150 Mbps (UL)
HSPA+/UMTS Parameters	Supported frequency bands: B1/B2/B3/B4/B5/B8/B19 Transfer rate: 42 Mbps (DL), 5.76 Mbps (UL)

Irrtum und Änderungen vorbehalten – auch ohne vorherige Ankündigung. Verwendete Hardware- und Softwarebezeichnungen, Marken sowie Firmennamen können eingetragene Warenzeichen sein und unterliegen somit den gesetzlichen Bestimmungen. / Information in this document is subject to change without prior notice. The software and hardware designations or brand names used in this text are in most cases trademarks or registered trademarks of their respective companies and are thus subject to law.

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ICR-4434

Software	
Operating System	ICR-OS (Linux based)
SW Customization	Router App (User Modules)*
Application Development	Open Linux, *Python, BASH, C/C++, *Node-RED, *Docker
Networking Features and Protocols	DHCP, NAT/PAT, SSH, VRRP, PPPoE, SNMP, SMTP, Dynamic DNS client, DNS proxy, VLAN, QoS, *DMVPN, NTP Client/Server, *Routing protocols RIP, BGP, OSPF, IS-IS, NHRP, Backup Routes, Port Forwarding, Host Port Routing, Ethernet Bridging, Load Balancing, IPv6 Dual Stack
Industrial Protocols and IoT	*Modbus RTU/TCP gateway, *IEC 60870-5-101 to 104 gateway, *DF1, *DNP3, *MQTT, *LWM2M
Security	HTTPS, SSH, SFTP, DMZ, Firewall (IP Filtering, MAC address filtering, Inbound and outbound Port filtering) VPN Tunneling – WireGuard, OpenVPN, *EasyVPN, IPsec with IKEv1 and IKEv2, GRE, L2TP, PPTP Authentication – RADIUS, TACACS+, 2FA, *SCEP Encryption – DES, 3DES, AES, RSA, MD5, SHA
Firmware Management	Automatic firmware updates – server, locally via LAN or remotely via WAN Over-the-Air cellular module firmware updates
Diagnostic/Log	Status – Signal Strength, Data Usage, Detailed Long Term Statistics One CLICK report – Current Configuration, Factory Identification, Routing Table Log – System Log, Reboot Log, Kernel Log Remote Diagnostics (via SSH)
Event Engine	StartUp script & Up/Down script (Own rules based on Digital Inputs, Network Parameters, Data Usage, Timer, Power, Device Temperature) Report Types: SMS, email, SNMP Trap
Configuration	Web server, SSH, Four configuration switchable profiles, Automatic configuration update from server, Backup & Restore configuration
Advanced Software Tools	WebAccess/DMP – Remote Device Provisioning, Monitoring & Management Platform WebAccess/VPN – Advanced Secure Networking Platform

*Functionality is available with installed Router App (User Module)

Standards & Regulations	
Radio	EN 3001 908-1, EN 301 908-2, EN 301 908-13, EN 303 413, EN 301 893, EN 300 328
EMC	EN 301 489-1,EN 301 489-17, EN 301 489-19, EN 301 489-52, EN 610000-6-2, EN 55032, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6
Safety	EN 62 368-1, IEEE 802.3
Transportation	E-mark (ICR-4434W, ICR-4434WS, ICR-4434W3, ICR-4434W3S)
National	CE, UKCA
Mechanical	EN 60068-2-27, EN 60068-2-64, EN 60529
Climatic	EN 60068-2-2, EN 60068-2-1, EN 60068-2-14, EN 60068-2-30
Environmental	REACH, RoHS3, WEEE
Cellular Module Approvals*	Regulatory: GCF, CE, FCC, PTCRB, IC, Anatel, CCC, NCC, KC, JATE/TELEC, RCM, ICASA, Carrier: Vodafone Global, Deutsche Telekom, British Telecom, Telefonica Spain, TIM, Verizon, AT&T, FirstNet, T-Mobile, Rogers, Telus, NTT Docomo, Telstra

*- Approvals are valid for the integrated cellular module inside the router only. Cellular module approvals are not always applicable for the whole router – see "Standards and Regulations" chart for complete router approvals available. **- Models having ICR-4434W1, ICR-4434W1S order codes have no E8 certification.

Accessories

Part Number	Description	Included in the package
BB-CON-WR2	2-pin PWR connector	✓
CON-ICR44-14	14-pin Serial / IO connector	
	Wall mount kit	
BB-DIN-ICR32	DIN clip (2 pcs are necessary for the mounting)	Optional
RPS-ICR4-WR2-M	Wall mount Power supply, 12 V/1.5 A, EU, UK, US, AUS plugs	
RPS-ICR4-WR2-PSE	**Desktop Power supply POE PSE, 48 V / 1.35 A, (without Power Cord)	
BB-PWRCORD-AUS	AUS Power Cord (for RPS-ICR4-WR2-PSE)	
BB-PWRCORD-EU	EU Power Cord (for RPS-ICR4-WR2-PSE)	
BB-PWRCORD-UK	UK Power Cord (for RPS-ICR4-WR2-PSE)	
BB-PWRCORD-US	US Power Cord (for RPS-ICR4-WR2-PSE)	
BB-KD-ETH	Ethernet cross cable, 1.5 m, Shielded	
BB-AW-A2458G-FSRPK	Antenna Wi-Fi, 2.4 & 5.8 GHz (3 pcs are recommended for full 3×3 MIMO performance)	
BB-2J7041BGFAP-300	Antenna LTE 3in1 MIMO, GPS passive, dome screw mount, 3× cable 1,5m	
ANT-LTE5G-025	Antenna 5G/LTE, Terminal (2 pcs are recommended for full cellular performance)	
BB-2J6024BA-150	Antenna LTE 2in1 MIMO, Low profile Screw mount, 2× cable 1.5 m	
BB-2J6983MPA-150	Antenna 2in1 5G/LTE MIMO, Magnetic and Adhesive mount, 2× cable 1.5 m	
BB-2J6A24BA-150	Antenna 2in1 LTE MIMO, Dome Screw mount, 2× cable 1.5 m	

For more Antenna accessories visit **www.advantech.com**

**Required power supply when used PoE/PoE+ on all ports is 48V / 150W

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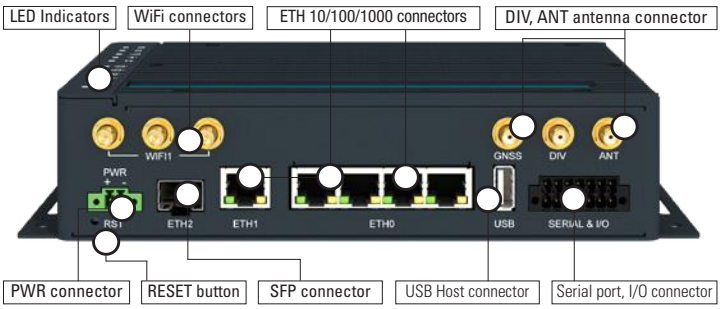
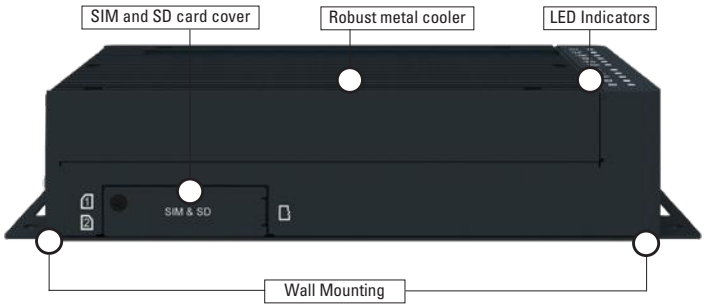
Views

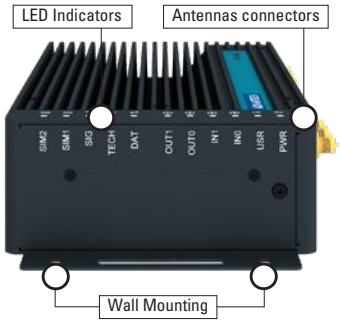
FRONT VIEW



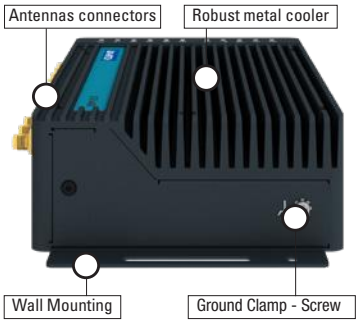
REAR VIEW



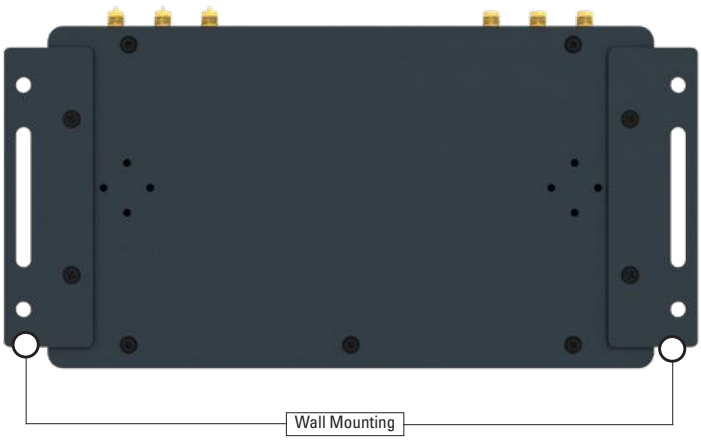
LEFT SIDE VIEW



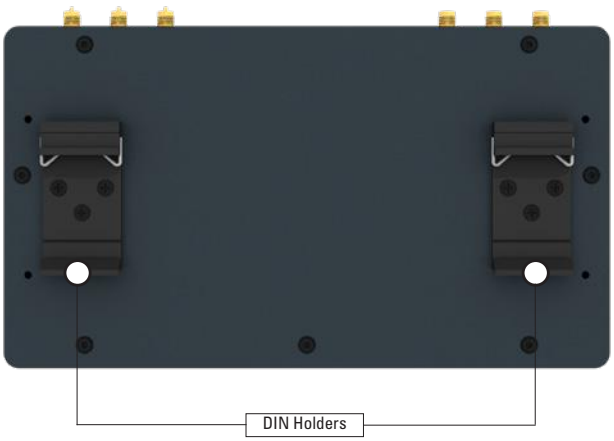
RIGHT SIDE VIEW



BOTTOM VIEW - WALL MOUNT KIT



BOTTOM VIEW - DIN HOLDERS



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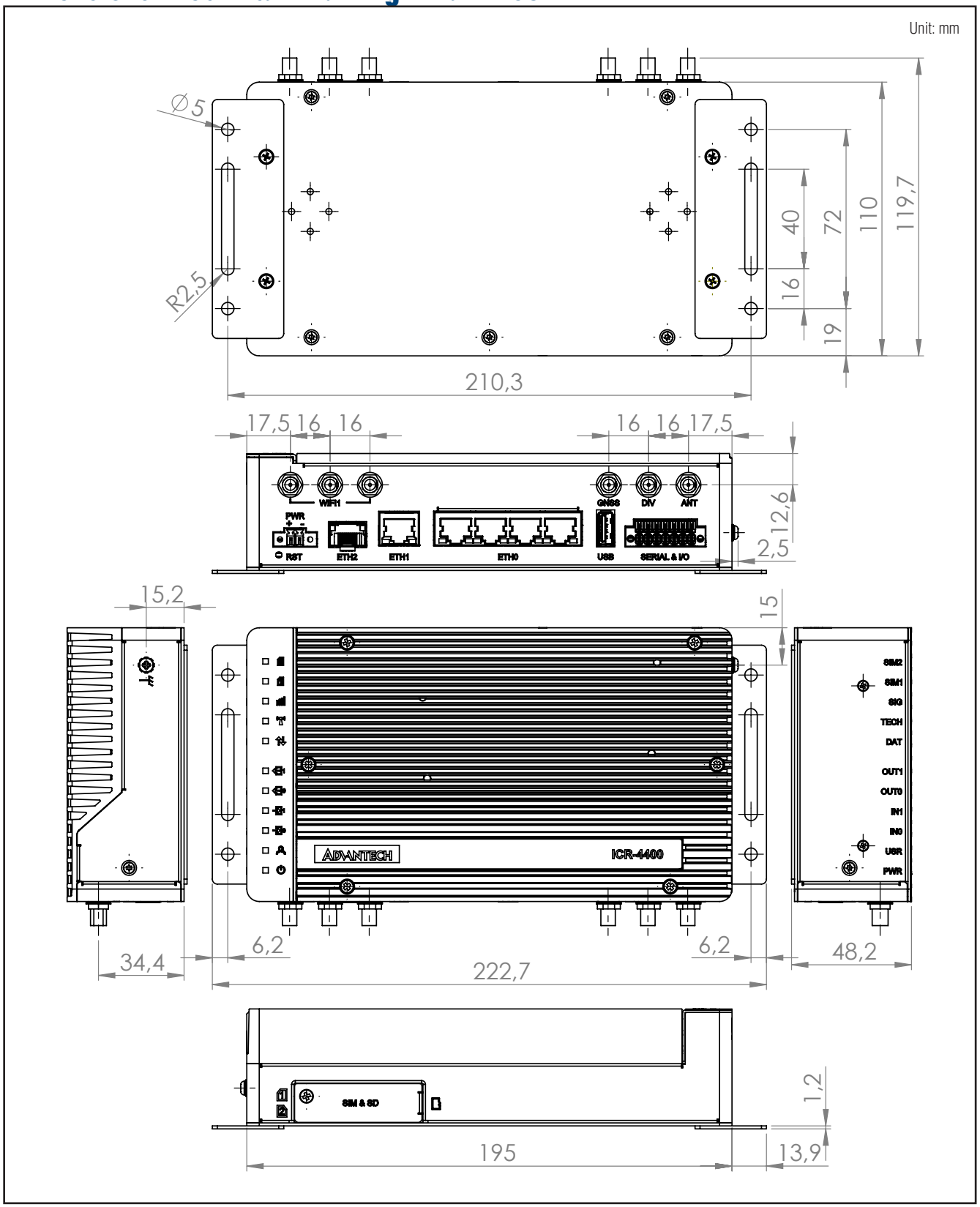
Dimensions - Technical Drawing - Wall Mount

Unit: mm



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Dimensions - Technical Drawing - DIN Holders

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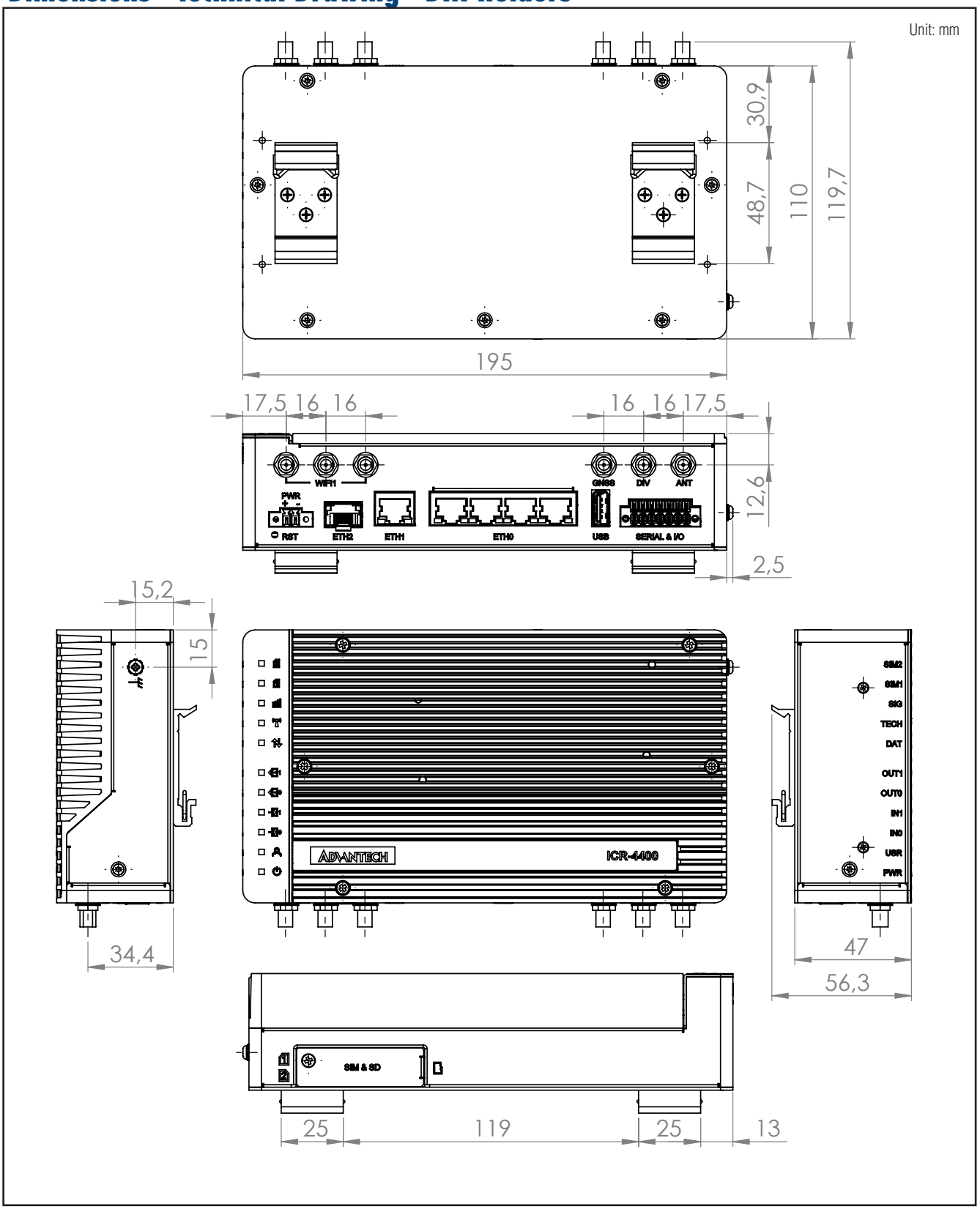

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